Wyoming Native Plant Society

Castilleja

The Newsletter of the Wyoming Native Plant Society

October 1995
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Kendall Warm Springs

by Walter Fertig

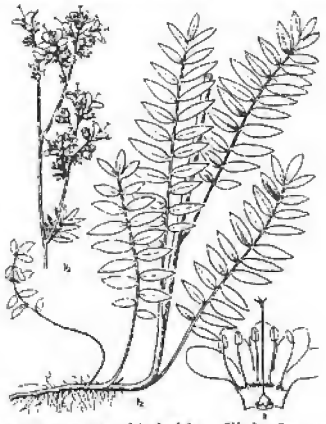
Warm springs and other thermal areas have long had a strong appeal for humans. Native Americans valued many thermal wetlands as ceremonial areas. Settlers in the 19th Century were also attracted to these areas, and many warm springs in the west were developed for commercial and recreational use (often as "health spas"). Unfortunately, relatively few warm springs have persisted into the late 20th Century in a relatively pristine state.

Kendall Warm Springs, located in the upper valley of the Green River on the west flank of the Wind River Range, has suffered its share of past abuse, but is still in relatively good condition. The springs are best known as the home of the Endangered Kendall Warm Springs dace (*Rhinichthys osculus thermalis*), a tiny, minnow-like fish. In addition to this remarkable fish, the area surrounding the springs contains a rich mosaic of ten different upland and wetland plant communities, including a cold-water alkaline fen. At least nine state or globally rare plant species can be found in the immediate vicinity of the springs. An area of approximately 160 acres surrounding the springs has been managed to protect the dace population since 1969, and has recently been proposed for official designation as a Special Management Area by Bridger-Teton National Forest.

Kendall Warm Springs is actually a collection of several thermal seeps and springs scattered along the north face of a low calcareous ridge. Outflow from these springs collect to form a shallow creek that remains 78 degrees F year-round. At its confluence with the Green River (only about 1000 feet downstream), this creek drops over Kendall Falls, a 10 foot cliff of white travertine deposits.

The area immediately surrounding the warm springs is occupied by a community of tall forb species, including yellow monkeyflower (*Mimulus guttatus*), Eaton's aster (*Aster bracteolatus*), white bog orchid (*Habenaria dilatata*), Mountain-marsh butterweed (*Senecio sphaerocephalus*), and western St. Johnswort (*Hypericum formosum*). Soils in this site are extremely wet and are kept warm year round by the adjacent thermal pools. Downstream, this riparian vegetation is replaced by a mix of beaked sedge (*Carex rostrata*) and tufted hairgrass (*Deschampsia cespitosa*) communities.

One of the more striking plants to be found in these communities is the western Jacob's ladder (*Polemonium occidentale*), a tall, sky-blue to purple flowered forb. The plant's common name comes from the elongate, pinnately-divided leaves that resemble the rungs of a ladder. Admire this species from a distance, however, for its glandular inflorescence has a very unpleasant odor!



Above: Western Jacob's ladder. Ill. by Jeanne R. Janish, Vascular Plants of the Pacific Northwest, Vol. 4.

The lowlands just north of the warm springs and along the Green River contain extensive thickets of Wolf willow (*Salix wolfii*), Booth willow (*S. boothii*), and Geyer willow (*S. geyeriana*). Willows are displaced by silver sagebrush (*Artemisia cana var. viscidula*) and shrubby cinquefoil (*Potentilla fruticosa*) meadows on slightly drier alluvial terraces above the wetland corridor. These stands contain

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Wyoming Native Plant Society

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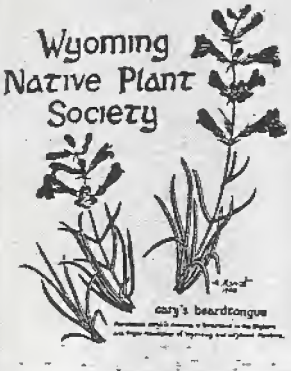
Attention WNPS Members: Your articles about Wyoming native plants or art work are welcome in the newsletter! We are especially looking for articles on native plant lore, cultivation of natives, and interesting places to visit. Information on local activities of interest to members is also appreciated. Deadline for the December issue is 10 November 1995.



WNPS NEWS

Annual Meeting: The WNPS annual meeting was held in the Red Desert on the weekend of June 17-18, 1995. Over thirty members and guests were in attendance the first day. We were pleased to have a high turnout of professors, staff, and graduate students from the University of Wyoming Botany Department, as well as employees from the Rock Springs BLM and Fossil Butte National Monument.

Society President Barbara Amidon opened the meeting with a welcome to her "backyard". Following a brief address on the state of the Society, a discussion was held on the merits of using native vegetation in roadside replanting. Claire Leon summarized her discussions with Wyoming Department of Transportation officials on current revegetaion regulations (see the May 1995 *Castilleja* for more details). Members questioned some of the existing policy rationales, including the idea that wildlife may be more attracted to roadsides planted with natives instead of exotics. Dennis Knight noted that grazing animals may be attracted to roadside vegetation because it tends to get more runoff and thus has lusher growth (irregardless of whether the species are native or not). It was agreed that more information needs to be gathered on the sources and availability of native seeds for roadside planting and that the Society can play an important role in educating the public and state officials on the value of natives.

In other Society business, the results of the 1995 Board elections were announced. To no ones surprise, the complete slate of nominated candidates were elected. Officers for 1995/96 are: President: Barbara Amidon; Vice President: Jennifer Whipple; Secretary-Treasurer: Walter Fertig; 2-year Board Member: Jean Daly. Diana Osuna will continue as the second Board Member. Mary Neighbors, our out-going Vice President, was not forgotten; she was nominated to look into developing a new Society T-shirt (such is the fate of Board Members who don't make the annual meeting).

In a close vote, the Snowy Range of the Medicine Bow Mountains was selected as the site for next year's annual meeting/field trip. Members also voted to hold a second field trip to the Nature Conservancy's Tensleep Preserve in the Bighorn Mountains. Look for more details on these trips in an upcoming newsletter.

With the business meeting completed, the group headed into the desert. Unfortunately, unseasonably cold and rainy weather prevented us from following the original itinerary. The group was able to stop and visit the petroglyphs along the base of White Mountain. At this site we encountered a number of unusual rock outcrop plants, including the compact gilia (*Ipomopsis crebrifolia*), a foul-smelling white-flowered relative of scarlet-gilia. From here, we proceeded to the Killpecker sand dunes, where Dr. Knight gave insights on the vegetation of the area in a howling windstorm. Our last stop was on North Table Mountain, a remnant volcanic plug bearing a rich assortment of wildflowers in bloom.

A smaller group of intrepid botanists weathered a rainy night in the backcountry and a long drive to Pacific Butte, just north of the Oregon Buttes, but were rewarded with a fabulous display of cushion plants in full flower. This natural rock garden included Hood's phlox (*Phlox hoodii*), moss phlox (*P. muscoides*), spoon-leaved milkvetch (*Astragalus spatulatus*), locoweed (*Oxytropis sp.*), sword-leaf Easter-daisy (*Townsendia spathulata*) and goldenweed (*Haplopappus armerioides*). WF

Shirley Mountain Field Trip: A second field trip was held on 15 July 1995 in the Shirley Mountains. Among the many interesting species observed was the Laramie false sagebrush (*Sphaeromeria simplex*), one of our rarest plants. Cliffs and rock outcrops of granite resembling the bizarre wind-carved features of the Vedauwoo area were also explored for a variety of wildflowers including penstemons, ferns, and cinquefoils. Selenium barrens at the base of the mountains were explored for a number of regional endemics adapted to these foul-smelling soils, including Ward's goldenweed (*Haplopappus wardii*), narrow-leaved buckwheat (*Eriogonum exilifolium*), and contracted Indian ricegrass (*Oryzopsis contracta*).

Membership Renewal/Elections: Many members still need to renew their membership for 1995-96. Members with a "94" or "95" on their mailing label need to renew to remain in good standing. (Those with a "96" are paid through next June).

New Members: Please welcome the following new members of WNPS: Cheyenne Botanic Gardens, Joanne Diepenheim (Wilson), Trudy Dittmar (Dubois), Judith Dyess (Afton), Mr. & Mrs. Michael Evans (Saratoga), Nina Haas (Cheyenne), Yvonne Henze (Moran), Vicki Herren (Kemmerer), Barbara Jenny (Sheridan), Linda Konkel (Wolf), Kevin Powell (Cheyenne), John Samson (Cheyenne), and Mary Young (Glendo).

We're looking for new members: Do you know someone who would be interested in joining WNPS? Send their name or encourage them to contact us for a complimentary newsletter.

Treasurer's Report: Balance as of 25 September, 1995: General Fund $ 735.47; 1995-96 Scholarship Fund $ 371.00; Total Funds: $ 1106.47. WF

Editorial

Native Plants Could Be Losers in Proposed BLM Land Transfer to the States

During the first session of the 104th Congress, Wyoming Senator Craig Thomas introduced a bill to transfer lands managed by the Federal Bureau of Land Management (BLM) to state governments. This proposal has generated a great deal of public debate, rekindling the passions of the "Sagebrush Rebellion" of the early 1980s.

Thomas' bill could have a major impact on the conservation of Wyoming's rare plant species and on the ability of wildflower enthusiasts to gain access to many of the state's wild gardens. At present, the state does not have any legislation protecting rare plant species (or any plant species for that matter) on its lands, nor do existing statutes address the conservation of areas of critical environmental concern. Wyoming state lands simply are not public lands in the same sense as Federal lands, with many restrictions to access and use (for example, overnight camping is not allowed). State lands are also managed to maximize profits for state schools rather than for multiple use. The profit motive has been used to justify the sale of state lands in the past, and could be used again when a moratorium on sales expires in 1996.

Like other Federal agencies, BLM management activities follow a doctrine of multiple use, which includes grazing, mineral and timber harvest, recreation, and protection of natural values. The BLM is subject to Federal environmental statutes, including laws regulating pollution and the protection of listed Endangered and Threatened species. Furthermore, the Bureau has developed its own guidelines to protect sensitive species and to manage areas of outstanding or critical environmental concern.

More importantly, the BLM has a staff of wildlife professionals and range managers to look after its 18.4 million acres in Wyoming. State government does not have a comparable infrastructure to manage existing state lands, let alone the proposed new lands. The skills and common sense that BLM range, botany, and wildlife professionals bring to their task of managing natural resources has largely been ignored in the debate about ownership of these lands, but is perhaps the best reason to retain BLM management of our public domain.

While the impact of government on private lives may be troublesome, these concerns should not be used to undermine wise management of public lands. Due to the efforts of the BLM, much of the public rangeland of Wyoming is in reasonably good condition. There seems to be little to gain and a lot to lose if ownership of BLM lands is transferred to the states. We should heed the old adage "if it ain't broke, don't fix it". WF

(Editorials in Castilleja *reflect the views of the author and are not necessarily those of the WNPS Board. Contrasting viewpoints, or opinions on other issues are welcome).*

Above: Sixteen fruits of *Xanthium* or *Glycyrrhiza* can be fashioned into a poodle-like dog. Ill. by W. Fertig.

Botanical Arts and Crafts

How to Make a Cocklebur Poodle

(or a cockle-spaniel, if you prefer)

Late summer and fall is a time when hikers become painfully aware of the great number of plant species that produce fruits with spines, hooks, or other protuberances designed to catch a ride on our pant legs, socks, and shoe laces. Mother Nature originally developed these structures to aid in the dispersal of seeds and fruits to new habitats for germination. It is only recently that a new use has been developed for these devilish devices: the modeling of small poodle-like dogs!

According to Wayne Armstrong, a botanist at Palomar College in California, the fruits of cocklebur (*Xanthium strumarium*) can be fashioned into a reasonable facsimile of a standard poodle. Sixteen fruits are required (1 each for the face and "topknot", 2 for the ears, 1 for the neck, 2 for the body, 1 for the tail, and 2 each for the legs). The slender, hooked bristles on the fruit help secure the parts together, although I have found that a little white Elmer's glue also helps if you wish to keep your poodle for posterity.

Other bristly fruits may be substituted with varying degrees of success. I have found that the fruits of licorice-root (*Glycyrrhiza lepidota*) will also yield a poodle. However, the fruits of burdock (*Arctium minor*) produce an animal that looks more like a cross between a woolly-bear caterpillar and a slightly demented grizzly bear. WF

Reference: Armstrong, W. P. 1993. Hitchhiking Plants. Zoonooz 66 (6): 24-27.

Botany 130 Songbook

By John "Barney" Baxter

Buffalo Grass

The latest addition to the Botany 130 songbook is based on the old tune "Buffalo Gals". This song was the theme of a recent TV movie called "Buffalo Girls". Actually "Buffalo" wasn't a very appropriate word for it was really a kind of turkey. (Come to think of it, "Buffalo" was okay, because the whole thing was a lot of bull). If the reader does not know this old song, try something by Hootie and the Blowfish.

Buffalo grass, ain't ya comin' out tonight,
comin' out tonight, comin' out tonight,

Buffalo grass ain't ya comin' out tonight, to
mate by the light of the moon.

Oh, you come in male and female plants,
Macho plants and female plants,
So you gotta have a male and female plant
To mate by the light of the moon.

Come on out B. dactyloides,
Listen to them mating boidies,
June is here and love's in bloom,
Come out by the light of the moon.

Come on out - you shoulda come sooner,
The stars are bright and the moon is lunar,
Buffalo grass ain't ya comin out tonight,
To mate by the light of the moon.

Come out while the cactus blooms,
Shake your lemmas and wave your glumes,
Buffalo grass, ain't ya comin' out tonight,
To mate by the light of the moon.

Below: Buffalo grass (*Buchloe dactyloides*) is one of the dominant species in the shortgrass prairies of southeastern Wyoming. The species is unusual among grasses in having separate "male" and "female" individuals. Male (staminate) plants resemble grama (*Bouteloua* sp.), while females (pistillate plants) can be recognized by their bur-like spikelets. Ill. from *Manual of the Grasses of the United States*, second edition by Agnes Chase.

Botany Briefs

Botanical News from Wyoming
and the Rocky Mountain Region

USFWS Drops C2 Candidate List: On 19 July, 1995, the Director of the US Fish and Wildlife Service (USFWS) issued a new policy eliminating the Category 2 (C2) and 3 (3C) designations for candidate plant and animal species. The Service will now only recognize those species listed in Category 1 (C1) as "candidates" for potential listing as Threatened or Endangered under the Endangered Species Act (ESA. C2 and 3C species will no longer be formally listed in the biennial Notice of Review.

In the former system, Category 1 candidates were species for which the USFWS had sufficient information to support a listing proposal as Threatened or Endangered. By contrast, C2 species were those in which additional information on status, trend, and threats was needed before a decision to list could be made. 3C species were those which had proven to be more abundant or insufficiently threatened to warrant listing.

None of these designations provided formal protection for candidate plants or animals under the Endangered Species Act. Federal land management agencies, however, have traditionally tried to manage C1 and C2 species so that they would not continue to slide toward extinction and possible listing under the ESA. Many of the species currently listed as "Sensitive" by the US Forest Service in Wyoming are former C2 candidates.

The elimination of the C2 designation could have ramifications on the amount of management attention that many rare Wyoming plants receive. Chuck Davis, Field Supervisor for the Wyoming office of USFWS, cautions that the service remains concerned about the continued survival of the former C2 species in the state. In the coming months, USFWS plans to coordinate with other Federal agencies, academics, and interested lay people in determining if any of the old C2 species (now referred to as "Species at Risk") should be upgraded to C1 status.

At present, Wyoming has only two Category 1 candidate plant species: Small rockcress (*Arabis pusilla*) and Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*). In the last Federal Notice of Review (September 1993) the state had 49 C2 plant species. Ten of these were proposed to be dropped to 3C status and one was to be bumped to C1 in 1995, before the change in policy was announced. WF

New Wyoming Records of Parasitic Fungi: The following taxa of powdery mildews and rusts were documented for the first time in Wyoming in 1995:

Powdery mildews: *Erysiphe cichoracearum* on *Artemisia ludoviciana* (Louisiana sagewort), *Centaurea cyanus* (Bachelor's button), and *Iva xanthifolia* (Povertyweed). *Erysiphe polygoni* on *Melilotus alba* (White sweet-clover) and *Hesperis tristis* (Dame's rocket).

Rusts: *Puccinia helianthii* on *Iva xanthifolia; P. ludovicianae* on *Artemisia ludoviciana* and *A. frigida* (Fringed sage); *P. subnitens* on *Hesperis matronalis*; and *P. yosemitana* on *Phlox opalensis* (Opal phlox). JB

Kendall Warm Springs *(continued from page 1)*

a rich variety of colorful wildflowers, including large-leaved avens (*Geum macrophyllum*), heart-leaved Alexanders (*Zizia aptera*) and orange sneezeweed (*Helenium hoopesii*).

Gravelly areas at the interface of shrubby cinquefoil and mountain big sagebrush (*Artemisia tridentata var. vaseyana*) communities contain habitat for Payson's bladderpod (*Lesquerella paysonii*), one of the rarest species to be found at Kendall Warm Springs. This species can be recognized by its pale yellow 4-petaled flowers and flattened, elliptical fruit pods borne on "S"-shaped stalks. Payson's bladderpod is listed as a Sensitive species by the Forest Service, although it is now known to be more abundant elsewhere in the mountains of western Wyoming than it was once thought. The population at Kendall Warm Springs is quite extensive and is one of the few that currently receives special management attention.

The largest concentration of rare and unusual plants is found just north of the warm springs in a small calcareous wetland draining a cold water spring. A suite of species more typical of the boreal forests of Canada occur on quaking mats and hummocks of pinkish marl. Among the more unusual species is hoary willow (*Salix candida*), a "shrub" that grows to only 8 inches tall! This species can be recognized by its distinctly bicolored leaves that are dark green above and white-woolly beneath. False uncinia sedge (*Carex microglochin*) is another rare oddball characterized by drooping, sharp-pointed fruits at the tip of a 4 inch stem. This plant is known from only two other locations in Wyoming.

Kendall Warm Springs is located along the main access road to the Green River Lakes, a popular destination for fishermen and back-country explorers. The Forest Service is replacing the culverts on the road with a bridge this fall and is taking other measures to ensure the protection of the Kendall Warm Springs dace and its surrounding habitat. Designation of the area as a special management area will help ensure that the wonderful botanical features of the area receive the same protection as the dace. ❧

How to get there:

Kendall Warm Springs *is located approximately 30 air miles north of Pinedale, Wyoming. From Pinedale, head west on US Highway 191 for 6 miles to the junction of Wyoming State Highway 352. Continue north on highway 352 for approximately 25 miles to the boundary of Bridger-Teton National Forest. Proceed northward on Forest Service Road 160 (a sedan-grade dirt road), staying on the east bank of the Green River. After about 4.5 miles cross a cattle guard and fence to enter the Kendall Warm Springs proposed Special Management Area.*

Botanist's Bookshelf

Intermountain Flora: Vascular Plants of the Intermountain West, USA. Volume 5 Asterales. By Arthur Cronquist, 1994. The New York Botanical Garden, Bronx, NY. 496 pp.

Arthur Cronquist, a "living legend" among contemporary plant taxonomists, passed away in March 1992 while preparing the manuscript for the treatment of the sunflower family (Asteraceae) for the Intermountain Flora series. Fortunately, the text was nearly completed when he died and the work was published this past summer.

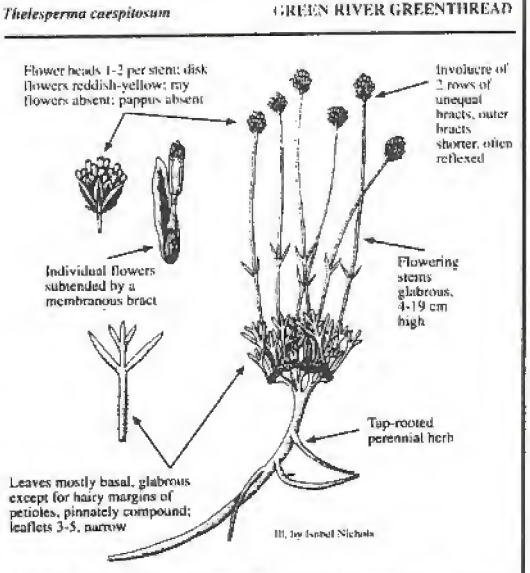
The Intermountain Flora series was initiated by Cronquist and fellow botanists Arthur and Noel Holmgren and James Reveal in the early 1970s. The volume on Asteraceae is the fifth to be published since 1972. Two additional volumes (covering the Magnoliidae, Caryophyllidae, Rosidae (except Fabales), and Dilleniidae) remain to be finished. The series is patterned after the 5 volume "Vascular Plants of the Pacific Northwest" and includes taxonomic keys, complete technical descriptions, and illustrations. The flora covers the Great Basin region of SE Oregon, S Idaho, N Nevada, NW Arizona, Utah, and the extreme SW corner of Wyoming. Although only a fraction of the state is included, most of the vascular plants of the basin areas of Wyoming are treated. The entire series is an excellent reference work for students of the flora of Wyoming.

Volume 5, like the others in the series, is a technical treatment intended for readers with some familiarity with botanical terminology and the use of keys. By and large, the keys are "user-friendly" and the descriptions and illustrations should prove to be extremely useful in the identification of unknowns. Unfortunately, some of the line drawings in the book did not reproduce well (the lines are too faint) and their quality varies greatly. Also, many illustrations appear to have been faithfully copied from herbarium mounts without compensation for artificial folds, creases, and flattened inflorescences.

Cronquist's book reflects his conservative approach to Asteraceae systematics, which may prove bothersome to some specialists. For example, he does not adopt recent taxonomic revisions of such genera as *Haplopappus, Machaeranthera, Heterotheca,* and *Antennaria*. He also makes some taxonomic combinations involving Wyoming species which are questionable. *Thelesperma caespitosum*, one of our rarest plant species, is lumped with *T. pubescens* despite the obvious and consistent differences in their morphology and habitat requirements noted by Robert Dorn. Likewise, Cronquist lumps *Townsendia nuttallii* with *T. hookeri*, despite taxonomically meaningful (although subtle) differences in their leaf, involucre, and pappus morphology.

Fortunately, the book provides synonyms and citations so the reader may pursue alternative taxonomic treatments without difficulty.

Despite these minor criticisms, Cronquist's book is a valuable reference work and is a fitting capstone to his outstanding career. WF


Thelesperma caespitosum
GREEN RIVER GREENTHREAD
Flower heads 1-2 per stem; disk flowers reddish-yellow; ray flowers absent; pappus absent
Involucre of 2 rows of unequal bracts, outer bracts shorter, often reflexed
Individual flowers subtended by a membranous bract
Flowering stems glabrous, 4-19 cm high
Tap-rooted perennial herb
Leaves mostly basal, glabrous except for hairy margins of petioles, pinnately compound; leaflets 3-5, narrow
Ill. by Isobel Nichols

Above: Green River greenthread (*Thelesperma caespitosum*) a recently described species restricted to the vicinity of the city of Green River, Wyoming and Duchesne County, Utah. In Wyoming, the species is known only from benches and upper slopes of barren, bleached shale soils derived from the Green River Formation. It is often one of the few flowering plants to be found in these extremely hot, dry habitats. The plants survival is threatened by trampling, soil compaction, and soil erosion resulting from road construction and the use of off-road vehicles in its narrow habitat. Ill. by Isobel Nichols from *Wyoming Rare Plant Field Guide.*

Assumptions, Facts, and Lack of Facts, About Seeds

By Willis Heron

(Excerpt from *Kelseya*, the newsletter of the Montana Native Plant Society, Summer 1990)

Growing natives from seed is often an exercise in frustration, since requirements are frequently unknown and vary widely from species to species. Most agricultural and garden crops are developed from species that germinate readily when placed in a suitable situation. These species have non-dormant mature seeds that begin growing when the right levels of temperature, water, oxygen, and light are present.

Think of a seed as a miniature living plant in a resting stage. This resting stage is maintained when the seed is dry and can usually be extended by cold or frozen storage.

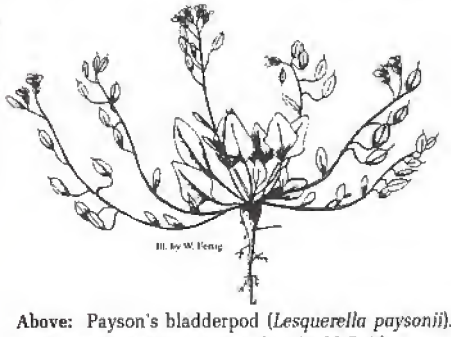
Seeds of many of our natives have special survival adaptations beyond the simple resting stage. Seed dormancy is a term covering several situations that singularly or in combination frustrate attempts to germinate them at will.

Some Common Dormancies

(1) Immature seed: A situation when the embryo is not fully developed even though the fruit is fully ripe. A period of after-ripening at temperatures above freezing is necessary. Freezing or drying immature seeds stops the after-ripening process although it may resume when suitable conditions are provided.

(2) Hormone dormancy: Sometimes a natural chemical is present that inhibits germination. These hormones are easily washed out by soaking in water and changing the water often.

(3) Hard seed coat: Juniperus and *Crataegus* seed coats, for example, physically retard germination.



Above: Payson's bladderpod (*Lesquerella paysonii*). Ill. by W. Fertig, *Wyoming Rare Plant Field Guide.*

A combination of temperature variation and microbe action over time will weaken the hard seed coat.

(4) Impermeable seed coat: An uncommon form of dormancy that is distinctive from the hard seed coat in that it prevents passage of gasses and water. Natural deterioration of the seed coat over time or physically opening the seed is required. Commercial producers of honey locust (Robinia) weaken the seed coat by sanding or soaking in sulfuric acid.

Stratification

Stratification of seed means any treatment that provides a moist and above-freezing situation for the required time. Time and temperature are important, and vary from species to species. Warm stratification is in the 50-70° F range, while cold stratification is from above freezing to 40° F, such as in a refrigerator.

Freezing seed only prolongs storage and has no other value during stratification. In nature seeds do freeze but it is not a known requirement for germination. Many chemicals and hormones have been tried in lieu of stratification but since the problem is not a lack of hormones, for example, the introduction of surplus ones have no effect. There are no known "magic dips" to satisfy stratification requirements.

The common sense approach is to simply let nature do her thing and sow seeds in late summer or fall. The human thing to do is to take short cuts so we don't have to water and weed an empty bed or plan too far ahead. We may also have a reluctance to give our seed back to the whims of nature, preferring to possessively keep an eye on it in storage or plan to do the sowing indoors.

When planning to produce a native from seed don't overlook the easy solutions just because of general lack of information. In fact, in many cases the hard part may be the right timing to collect mature seed before wind, wildlife, or rain beat you out. Information on time of seed maturation is also very limited, so the whole process from flowering to fruiting may have to be monitored on a regular basis to determine a collection time. Seeds that become dry at maturity can be cleaned by screening or winnowing but it's not necessary to have perfectly clean seed. Seeds with pulp or fleshy parts should be cleaned by crushing and washing in water or by the very careful use of the kitchen blender. When washing pulp from seed don't waste effort to save the seeds that float since they are not filled; the good seed will sink.

Your mission then, should you decide to accept it, is to select a native, develop a strategy for seeding, and report back to the native plant society. Only some bogus assumptions will self destruct.

The Wyoming Native Plant Society, established in 1981, is a non-profit organization dedicated to encouraging the appreciation and conservation of the native flora and plant communities of Wyoming. The Society promotes education and research on native plants of the state through its newsletter, field trips, and annual student scholarship award. Membership is open to individuals, families, or organizations with an interest in Wyoming's flora. Members receive Castilleja, the Society's quarterly publication, and may take part in all of the Society's programs and projects, including the annual meeting/field trip held each summer. Dues are $5.00 annually.

To join the Wyoming Native Plant Society, return the membership form below to:

Wyoming Native Plant Society
1604 Grand Avenue
Laramie, WY 82070

Name: _____

Address: _____

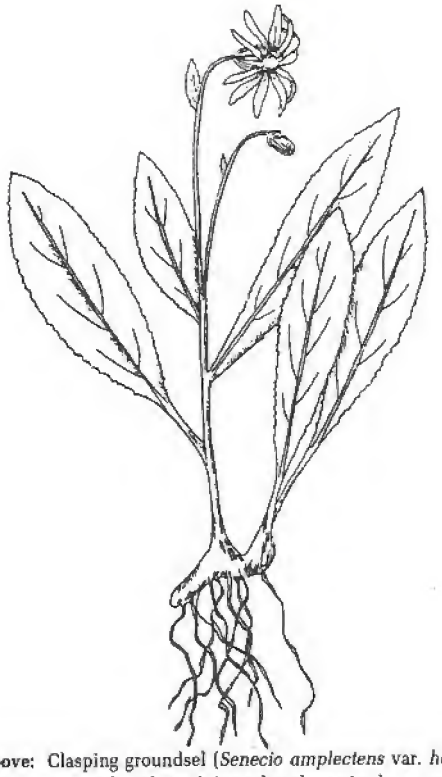
_____

_____

☐ $5.00 Regular membership

☐ $15.00 Scholarship Supporting Member

($10.00 goes to annual scholarship fund)



Above: Clasping groundsel (*Senecio amplectens* var. *holmii*), a yellow-flowered composite found on alpine talus slopes in the mountains of western and southeastern Wyoming. Ill. by W. Fertig.

Wyoming Native Plant Society

WYOMING NATIVE
PLANT SOCIETY
1604 Grand Avenue
Laramie, WY 82070